January 1924. Price 60s

GRAY'S

SPICILEGIA ZOOLOGICA.

Conclusion.

By O. E. Janson, J. R. le B. Tomlin M.A., F. A. Bather M. A. D.Sc. F.R.S.

With 27 Plates, (11 coloured.)

LONDON: Janson & Sons, 44, Great Russell Street, W. C. 1.

Antiquariaat Junk . b.v.

fl. 3.500, -- (2 pts.)

7054/84 (6)

PART III.] [*January 1924.*

SPICILEGIA ZOOLOGICA.

(*Conclusion.*)

LONDON: PUBLISHED BY JANSON AND SONS, 44 GREAT RUSSELL STREET, W.C. 1.

ALTHOUGH two parts only of Gray's "*Spicilegia Zoologica*" were actually published—viz., pt. 1, pp. 1–8, pl. 1–6, July 1828, and pt. 2, pp. 9–12, pl. 7–11, August 1830,—twenty-seven additional plates had been prepared, printed, and in some cases coloured ready for issue in successive parts that for some reason never appeared, and it is these unpublished plates, after remaining dormant for nearly a century, that are now issued as a third and concluding part of the work.

Unfortunately, only nine of these plates bear the names of the objects figured, and as no text had been prepared by the author, the late Dr. J. E. Gray, and no manuscript descriptions or notes referring to the figures of the other eighteen plates were discoverable, I have endeavoured, with the very liberal assistance given me by specialists, to supply this deficiency as far as possible, and in giving the names with references to add any notes considered desirable or in explanation of synonymy, etc. In this endeavour it has been found that while many of the figures prove to be very accurately drawn, others are less satisfactory, and some, chiefly in the Mollusca, lack details essential for their identification and have, therefore, to be left still unnamed.

I am indebted to Mr. J. R. le B. Tomlin for the pains he has taken in the determination of the Mollusca and to Dr. F. A. Bather for the very full account of the Lansdown Encrinite. I have also to acknowledge the much appreciated assistance I have received from Mr. Thos. Wells of the bird room, of the British Museum, Mr. T. Iredale, Mr. R. I. Pocock, Mr. H. Fulton, Mr. G. A. Boulenger, and Capt. P. S. Kershaw, to all of whom I proffer my thanks.

Several more plates intended for this work it has been considered advisable to ignore, as only a few, apparently "proof copies," of them have been found.

A few errors that I have observed in the earlier portion of this work are referred to in the "Errata" at the end of the present part.

OLIVER E. JANSON.

MAMMALIA.

Fam. VIVERRIDÆ.

Plate XXV. *Viverra afra*. Barbary Genet.

Barbary. Tower of London Menagerie. October 1829.

Gray in his Revision of Viverridæ, Proc. Zool. Soc. 1864, p. 515, treats both *V. afra*, Cuv., and *V. maculata*, Gray, Spicilegia Zool. p. 9, t. ix. 1830 (not Zool. Misc., as erroneously quoted by him) as synonyms of *Genetta vulgaris*, Less. (Gray, Proc. Zool. Soc. 1832, p. 68), remarking that he "cannot find any difference between the specimens from Europe, Algiers, Tangiers, and Mount Carmel. The distinctness and darkness of the streak upon the forehead differ in specimens from the same localities."

Matschie, in a revision of this group of animals (Verh. Int. Zool. Cong. Berlin, 1902, p. 1128), attempts to show that *afra* and *valgaris* are two distinct species, but Mr. R. I. Pocock informs me that, judging from skins from Morocco and Algiers in the British Museum collection, the Genet (*G. afra*) belongs to the same species as the Spanish one which was originally described as *Genetta* by Linnæus and is still known as *Genetta genetta*.

Fam. CERVIDÆ.

Plate XXVI. *Cervus alces*, Lin. Junr. Elk (young).

Hab. Northern Europe and N. America.

This figure of a young specimen of the well-known Moose or Elk (*Alces machlis*, Ogilby, or *Alces alces* of recent authors), taken from a living example in Cross's Royal Menagerie in 1829, was considered by Gray to be of sufficient interest for illustration in this work, very little being known at that time regarding the youthful stages of the animal.

Fam. TAPIRIDÆ.

Plate XXVII. *Tapirus* sp. Tapir.

The want of essential details, coloration, measurements, and habitat renders it impossible to identify this figure. It has the appearance of a young animal and does not agree with the characters of any of the species described by Gray. Mr. R. I. Pocock suggests that it may have been drawn from a youngish and badly nourished example of the common Brazilian species *Tapirus terrestris* in the Zoological Gardens.

CHIROPTERA, fam. RHINOLOPHIDÆ.

Plate XXVIII. fig. 1, 1 *a*. *Rhinolophus macrotis*, Blyth.

R. macrotis (Hodgs.) Blyth, J. A. S. B. xiii. 1844, p. 485; Dobson, Mon. Asiat. Chirop. 1874, p. 45, fig. *a*, *b*; Cat. Chirop. B.M. 1878, p. 110.

Hab. Himalaya (Nepal, Masuri).

Plate XXVIII. fig. 2, 2 *a*. *Rhinolophus fuscus*.

This name is not given in Dobson's Catalogue and I cannot find that it has ever been published. The figures appear to represent the *R. fumigatus*, Rüpp., of the British Museum collection, but without further particulars respecting the habitat, size, colour, etc., it is impossible to decide with certainty.

Plate XXVIII. fig. 3, 3 *a*. *Euryotis grandis*.

This name is not to be found in Dobson's Catalogue, and appears to be unpublished. The figures agree fairly well with the *R. hildebranti*, Peters, of the British Museum collection, and not with the *R. euryotis*, Temm., as might be inferred.

NATIONAL MUSEUM OF VICTORIA 1854

Plate XXVIII. fig. 4, 4 *a*. *Rhinolophus tragatus*, Hodgs.

Rhinolphus tragatus, Hodgs. J. A. S. B. iv. 1835, p. 699.

Hab. Nepal, Darjeeling.

In Dobson's Catalogue this stands as a synonym of *R. ferrum-equinum*, Schr., a common and widely distributed species in Europe, Asia, and Africa.

Plate XXVIII. fig. 5. *Rhinolophus megaphyllus*, Gray.

R. megaphyllus, Gray, P. Z. S. 1834, p. 52; Dobs. Cat. Chirop. B.M. 1878, p. 110.

Hab. Australia.

In Dobson's Catalogue it is stated that the type specimen is figured in the "Voyage of the 'Erebus and Terror,'" an error on his part, there being no figure or any reference to it in that work.

Plate XXVIII. fig. 6, 6 *a*. *Rhinolophus aurantius*, Gray.

R. aurantius, Gray, Eyre's Cent. Austral. i. 1845, p. 405, pl. 1. fig. 1.

Rhinonycteris aurantia, Dobs. Cat. Chirop. B.M. 1878, p. 126.

Hab. Australia.

AVES.

Fam. Falconidæ.

Plate XV. *Haliaetus australis*. Australasian Fishing Eagle.

In what is evidently a proof copy, with corrections in Dr. J. E. Gray's handwriting, of the first sheet (pp. 1–8) of "Ornithological Miscellany," a work that was apparently never published, the following description of this bird is given on p. 8:—

"Australasian Fishing Eagle, *Haliaetus australis*, t. 1. Brown, head, neck, chest, and broad band on tip of tail feathers white; quills black; wings, when folded, reaching quite to the tip of the tail. Length 22; of wing 15½; of middle toe 2 inches. Inhab. New South Wales.

"This bird, which I only know from a figure and short description of a specimen which was in the Leverian Museum, in the possession of General Hardwicke, has much the colouring of the White Bellied Fishing Eagle, *Haliaetus leucogaster*, the *Falco leucogaster*, Lath. Syn. pl. col. t. 49, but is not half the size, the wings are much longer, and the thighs, sides, abdomen, and vent are coloured like the back."

Haliaetus australis, Gray MS. is quoted as synonym under *Haliastur indus*, Bodd., by Mathews in his 'Birds of Australia' v. p. 148, 1915, the most recent authority on the subject.

Fam. Tanagridæ.

Plate XVII. fig. 1. *Tachyphonus coronatus*. Red-crested Tanager.

Agelaius coronatus, Vieill. Nouv. Dict. 34, 1819, p. 535.

Tachyphonus coronatus, Sclater, Cat. Birds B.M. xi. 1886, p. 213.

Hab. S.E. Brazil and Paraguay.

The figure represents an adult male; the female is ferruginous-brown on the upper parts and slightly paler on the under surface.

Identified by Mr. T. Wells.

Plate XVII. fig. 2. *Tachyphonus rufus*. Greater White-shouldered Tanager.

Tanagra rufa, Bodd. Tabl. Pl. Enl. 1783, p. 44 [♀].

Tachyphonus melaleucus (Sparrm.), Sclater, Cat. Birds B.M. xi. 1886, p. 206.

Tachyphonus rufus, Brab. & Chubb, B. S. America, i. 1912, p. 421.

Hab. Colombia; Venezuela; Tobago; Trinidad; Guiana; Peru; Eastern and Southern Brazil.

The figure represents an adult male; the female being rusty-brown above and slightly paler below.

Identified by Mr. T. Wells.

Fam. Sturnidæ.

Plate XVI. fig. 1. *Melanopyrrhus phillipensis*. "Phillipine Oriole".

Oriolus phillipensis, Gray, Zool. Misc. 1831, p. 3.

Sericulus anais, Less. Rev. Zool. 1854, p. 44.

Melanopyrrhus anais, Sharpe, Cat. Birds B.M. xiii. 1890, p. 113.

Gray's brief description and his statement that the specimen was deficient of its wings and feet are sufficient to enable me to identify this figure, in which these missing parts were necessarily left uncoloured.

Mr. Wells had previously identified it as an unfinished figure of *Sericulus anais*, Less., of which a good figure is given in Gould's 'Birds of New Guinea' (vol. 4, plate 16), and in this species it will be seen there is a narrow yellow occipital stripe extending forwards from the collar towards the eye which is not shown in the present figure of *phillipensis*, but, as this was drawn from a mutilated specimen, this stripe may not have been observable to the artist, or that particular part of the bird may also have been wanting.

The true origin of Gray's type specimen I should consider open to much doubt. He states that it was found by Capt. Hay amongst other birds obtained from the natives, who used them as plumes, and as Manilla has long been a great trading port for all kinds of commodities these birds may have been brought in from some other of the East Indian Islands, and possibly from New Guinea or Salwatty, the only recorded localities of *M. anais*. Both Walden, in his list of the birds of the Philippines (Tr. Zool. Soc. ix. 1875, p. 186), and Sharpe (Cat. Birds B.M. iii. 1877, p. 188) give *O. phillipensis* as a species unknown to them, we therefore have no reliable evidence of it being a Philippine bird and distinct from *anais*. Gray's name having priority, although inappropriate, must be now adopted for the species.

Fam. Pipridæ.

Plate XVIII. fig. 1. *Antilophia galeata*. Helmeted Manakin.

Pipra galeata, Licht. Verz. Doubl. 1823, p. 28.

Metopia galeata, Sclater, Cat. Birds B.M. xiv. 1888, p. 290.

Antilophia galeata, Brab. & Chubb, B. S. America, i. 1912, p. 309.

Hab. Eastern and Central Brazil and Bolivia.

The figures represent the adult male and head of the female, which has the plumage of the whole body dull olive-green.

Identified by Mr. T. Wells.

Fam. Tyrannidæ.

Plate XVIII. fig. 2. *Lichenops perspicillata*. Spectacled Tyrant.

Motacilla perspicillata, Gmel. Syst. Nat. i. 1789, p. 969.

Lichenops perspicillata, Sclater, Cat. Birds B.M. xiv. 1888, p. 48.

Hab. S.E. Brazil and S. Bolivia to Patagonia.

The figure represents an adult male. The female is dark brown above with light brown edges to the feathers, remiges chestnut with dark brown tips, beneath fulvous-white, breast with dark striations.

Identified by Mr. T. Wells.

Fam. Pittidæ.

Plate XVI. fig. 2, *Pitta macrorhynchus*. Large-billed Pitta.

P. macrorhynchus, Gray, Zool. Misc. 1831, p. 3.
Brachyurus forsteni, Bonap. Consp. i. 1851, p. 256.
Melanopitta sordida, Wald. Tr. Zool. Soc. ix. 1875, p. 187.
Pitta atricapilla, Sclater, Cat. Birds B.M. xiv. 1888, p. 442.
P. forsteni, Elliot, Mon. Pitt. ed. 2, 1894, pl. 40.

I have had no hesitation in deciding that this figure was made from Gray's type specimen of his *Pitta macrorhynchus*, which, like that of *Oriolus phillipensis* on the same plate, is stated by him to have been deficient of its wings and feet, so that these parts had to be left uncoloured. As Mr. Wells identifies it as an unfinished figure of *Pitta forsteni*, Bonap., and remarks that it is distinguished from all other green Pittas by its green tail, it is evident that these are one and the same species, for which Gray's name has priority, and it is therefore safe to assume that his type specimen, found by Capt. Hay amongst other birds obtained from the natives (presumably at Manilla), who used them as plumes, had been imported, probably from Celebes, the only recorded habitat of the species.

In not having the advantage of seeing the present figure and obviously misled by the locality given by Gray, both Walden and Elliot have erroneously quoted *macrorhynchus* as a synonym of *sordida*, a true Philippine species.

Fam. Phasianidæ.

Plate XIX. *Lophophorus wallichii*. "Wallich's Monaul".

L. wallichii, Hardw. Tr. Linn. Soc. xv. 1827, p. 166.
Catreus wallichii, Grant, Cat. Birds B.M. xxii. 1893, p. 317.

Hab. Himalaya, Kumaon, Nepal.

Fam. Megapodiidæ.

Plate XX. *Alectura lathami*. Latham's Alectura.

A. lathami, Gray, Zool. Misc. 1831, p. 3.

Hab. Australia.

Gray states that Latham's figure of it, under the name of New Holland Vulture (Gen. Hist. Birds, 1821, p. 32, pl. 6), is not good.

The present figure is that of a female, the male having a yellow wattle.

Mathews ('Birds of Australia,' i. 1910, p. 56) calls it the Brush-Turkey and gives New South Wales and Queensland as its habitat, and figures the male on his plate 8.

Fam. Rallidæ.

Plate XXI. *Actæus troglodytes*, Gray. Troglodyte Beach-Rail.

Hab. New Zealand.

Mathews and Iredale in their list of the New Zealand Birds, 'Ibis,' 1913, p. 212, follow Sharpe, Cat. Birds B.M. xxiii. 1894, p. 64, in treating *Rallus troglodytes*, Gm., as a synonym of *Ocydromus australis*, Sparr.; the present figure, however, differs in many respects from Sparrman's figure, Mus. Carls., i. 1786, pl. 14; and both of these figures again differ very considerably from that of *O. australis*, G. R. Gray, Zool. Voy. 'Erebus' and 'Terror,' Birds, 1846, p. 13, pl. 14, which Mathews and Iredale have omitted to refer to in their List.

Mr. T. Iredale, who possesses a profound knowledge of New Zealand birds, has seen the present figure, and is of opinion that it represents a variety of *O. australis*, a very variable species of which *O. earli*, G. R. Gray, is another variation that occurs with the typical form in the Dusky Sound district in the South Island. He also points out that *Gallirallus* is now adopted as the generic name, in place of *Ocydromus*, for these birds, commonly known as Wood-Hens.

Fam. Podicipedidæ.

Plate XXII. *Podiceps affinis*. "White-winged Grebe, Lath.", young.

The name *P. affinis*, given on the plate, has never been published by Gray, as far as I can discover, and the White-winged Grebe of Latham, Gen. Syn. iii. pt. i. 1785, p. 291, is, according to Grant, Cat. Birds B.M. xxvi. 1898, p. 520, the *P. dominicanus*, Linn. The name *affinis* was used in the genus by Salvadori in 1865, but this is quoted as a synonym of *P. holboelli*, Reinh., by Grant.

The present figure being that of a young specimen, which usually differs considerably in coloration from the adult, and without record of the locality it came from I have not been able to decide its identity with certainty, but it is probably a young form of *P. dominicanus*, a species of wide distribution in Central and S. America, Mexico, and W. Indies.

Fam. Anatidæ.

Plate XXIII. *Cygnus bewicki*. Bewick's Swan.

C. bewicki, Yarr. Tr. Linn. Soc. xvi. 1830, p. 453; Salvad. Cat. Birds B.M. xxvii. 1895, p. 29.

Hab. Arctic Siberia, whence it migrates to the Caspian, South Siberia, Mongolia, China, and Japan.

Yarrell, when describing this bird in 1830, mentions that he had presented one of his specimens to the British Museum, and as this plate would have been drawn about that time and a proof copy is marked in manuscript "Yarrell's Swan," it is at least probable that the drawing was made from this co-type specimen.

Fam. Ploceidæ.

Plate XXIV. *Ploceus bengalensis*. Nest of Bengal Weaver.

P. bengalensis, Linn. Syst. Nat. i. 1766, p. 305.

Hab. India and Burma.

Sharpe (Cat. Birds B.M. xiii. 1890, p. 493) calls this the Black-throated Weaver-Finch.

REPTILIA.

Chelonia (Testudinata).

Plate XIII. fig. 1. *Testudo stellata*. Starred Tortoise.

T. stellata, Schwg. Prod. i. 1812, p. 325; Gray, Synop. Rept. 1831, p. 12, pl. 3. f. 1; Cat. Shield. Rept. 1855, p. 7; H.-list Shield. Rept. 1873, p. 7 (*Peltastes s.*).

India and Ceylon.

This and the following plate of Tortoises, originally prepared for 'Spicilegia Zool.,' were used by Gray to illustrate the species in his 'Synopsis Reptilium' as here quoted, the copies so used being cut down and folded to adapt them to the octavo size of that work.

Plate XIII. figs. 2, 3. *Testudo pardalis*. Leopard-Tortoise.

T. pardalis, Bell, Zool. Journ. ii. 1826, p. 420, pl. 25; Gray, Synop. Rept. 1831, p. 12, pl. 3. f. 2, 3; Cat. Shield. Rept. 1855, p. 9; Append. 1872, p. 4; H.-list Shield. Rept. 1873, p. 5.

Central and Western Africa, Cape of Good Hope, Natal.

Plate XIV. *Trionyx hurum*. Hurum Trionyx.

T. hurum (Hamilton), Gray, Ill. Ind. Zool.; Synop. Rept. 1831, p. 47, pl. 10; Cat. Shield. Rept. 1855, p. 66 (as a synonym of *T. gangeticus*, Gray); H.-list Shield. Rept. 1873, p. 79.

T. ocellatus (Hamilton, Icon. Mus. Ind.), Gray, Ill. Ind. Zool. 1830.

T. jeudii, Gray, P. Z. S. 1869, p. 217, f. 19; Cat. Shield. Rept., Supp. 1870, p. 97, f. 32 (skull).

India.

Described from specimens taken by Gen. Hardwicke and Dr. Hamilton in the River Ganges.

MOLLUSCA.

By J. R. le B. Tomlin, M.A.

Plate XXXI. fig. 1, 2. *Pseudachatina downesii*.

Bulinus downesii, Sow. Conch. Illus. xcix. 1838, pl. 145.

A well-known West African shell.

Plate XXXI. fig. 3. *Cancellaria textilis*.

C. textilis, Kiener, Coq. Viv. Cancellaria, 1841, p. 10, pl. 7. f. 1.

Les Mers des Moluques.

Plate XXXI. fig. 4. *Pollia pagodus*.

Buccinum pagodus, Reeve, Conch. Icon. iii. 1846, pl. 7. f. 50.

Panama (Mus. Cuming).

Plate XXXI. fig. 5. *Oliva* (*Olaneophila*) *aquatilis*.

Oliva aquatilis, Reeve, Conch. Icon. vi. 1850, pl. 18. f. 38.

Brazil (Mus. Steere).

Plate XXXI. fig. 6. *Scaphella turneri*.

Voluta turneri, Griff. & Pidg. Anim. Kingd., Moll. 1834, p. 601, pl. 40. f. 1.

N.E. Australia (Tryon).

Plate XXXI. fig. 7. *Acanthina tuberculata*.

Monoceros tuberculatum, Sow. Conch. Illustr. xv. 1835, f. 9.

Panama to Mazatlan (Tryon).

Plate XXXI. fig. 8. *Pollia purpuroides*.

Fusus purpuroides, Orb. Voy. Amér. Mérid. v. 1841, p. 448, pl. 63. f. 1.

Coast of Peru.

Plate XXXII. fig. 1. *Rapana xanthostoma*.

Purpura xanthostoma Brod. P. Z. S. 1833, p. 8.

Valparaiso (Mus. Cuming).

Plate XXXII. fig. 2. *Trophon crassilabrum*.

Purpura crassilabrum Sow. Conch. Illustr. Murex, 1834, f. 14.

Valparaiso.

I cannot discover that Gray ever described this, though the name is frequently ascribed to him. Probably Sowerby adopted a MS. name of Gray's which he found in the Brit. Mus. collection, as happened in so many other cases.

Tryon, Man. Conch. xi. 1880, p. 239, gives *M. labiosus*, Gray, Spicilegia Zool. p. 4, pl. 6. f. 9, as =*crassilabrum*, Gray, but, judging by the figures, they appear to be quite distinct species.

Plate XXXII. fig. 3. *Thais floridana*.

Purpura floridana, Conrad, Journ. Acad. Nat. Sci. Philad. vii. pt. 2, 1837, p. 265, pl. 20. f. 21.

Florida and Alabama.

Plate XXXII. fig. 4. *Murex imperialis*.

Murex imperialis Swains. Zool. Illust. ser. 2, ii. 1831, pl. 67.

Margarita Is. Lat. 11° 20′ N., long. 63° 20′ W.

Plate XXXII. fig. 5. *Heliotropis contrarius*.

Fusus contrarius, Lam. Anim. sans Vert. vii. 1822, p. 133.

La mer du Nord.

Plate XXXII. fig. 6. *Fasciolaria papillosa*.

F. papillosa, Sow. Tankerville Cat. App. 1825, p. xvi.

West Indies to Brazil (Tryon).

This identification is somewhat doubtful.

Plate XXXII. fig. 7. *Latirus ceratus*.

Murex ceratus, Wood. Ind. Test., Supp. 1828, pl. 5, f. 15.

Locality unknown (Mrs. Mawe's Cabinet).

Plate XXXIII. fig. 1. *Euglandina coulteri*.

Oleacina coulteri (Gray) Pfeiff. Mon. Helic. iv. 1859, p. 642.

S. America.

Beck, Ind. Moll. 1837, p. 78, and Tryon, Man. Conch. xix. p. 186, refer to this unpublished figure of Gray's 'Spicilegia Zool.'

Plate XXXIII. fig. 2. *Helicostyla* (*Orthostylus*) *fischeri*.

Cochlostyla fischeri, Hidalgo, Journ. de Conch. xxxvii. 1889, p. 301, pl. 14. f. 5.

Island of Busuanga, Philippine Is.

It is not a little surprising that this well-known shell should have had to wait half a century after this figure was made before being published as a new species.

Plate XXXIII. fig. 3. *Streptochilus* (*Eurytus*) *piperitus*.

Bulinus piperitus Sow. Conch. Illust. 1838, f. 93.

Huallaga.

Plate XXXIII. figs. 4, 5. *Orthalicus adamsonii*.

Bulinus adamsonii, Gray, P. Z. S. 1833, p. 123 (March 1834).

Parremo, E. slope of Andes (coll. Adamson).

Plate XXXIII. fig. 6. *Xesta stuartiæ*.

Helix stuartiæ ("Sowerby in Mus. Brit."), Pfeiff. Zeitsch. f. Malak. 1845, p. 154.

Celebes.

Plate XXXIII. fig. 7. *Panda falconeri*.

Helix falconeri, Gray, P. Z. S. 1834, p. 63.

New Holland.

Plate XXXIII. fig. 8. *Pœcilozonites bermudensis*.

Helix bermudensis, Pfeiff. Conch. Cab. Helix, pt. 2, 1852, p. 120, pl. 87. f. 9, 10.

Bermuda.

Plate XXXIV. fig. 1. *Leucotænia crassilabris.*

Bulimus crassilabris, Gray, P. Z. S. 1834, p. 66.

Madagascar.

Identified by Mr. Fulton.

Plate XXXIV. fig. 2. *Cancellaria solida.*

C. solida, Sow. P. Z. S. 1832, p. 50.

Real Llejos and St. Elena (Mus. Cuming).

Plate XXXIV. fig. 3. *Aplecta maugeriæ.*

Physa mangeriæ, Reeve (err. typ.—it is given correctly on p. 256), Elem. Conch. i. 1860, p. 180, pl. 17. f. 91.

W. Indies.

This name, though frequently ascribed to Gray, does not appear to have been published by him. The first occurrence of it in print seems to be on p. 171 of Woodward's Manual, but it is there only a *nomen nudum*.

Plate XXXIV. fig. 4. *Amastra spirizona.*

Achatina spirizona, Férus. Hist. Nat. Moll. ii. pt. 2, 1851, p. 196, pl. 155. f. 14, 15.

Oahu.

Plate XXXIV. fig. 5. *Bulimella rosea.*

Achatinella bulimoides var. ? *rosea*, Swains. Q. Journ. Sci. Lit. and Art. 1828, p. 85.

Islands of the Pacific Ocean.

It is now known to be a native of the island of Oahu.

Plate XXXIV. fig. 6. *Acanthina lapilloides.*

Monoceros lapilloides, Conrad, Journ. Acad. Nat. Sci. Philad. vii. 1837, p. 265, pl. 20. f. 18.

A Californian shell, which was described two years later by Gray as *Monoceros punctatum* in the 'Zoology of Beechey's Voyage.'

Plate XXXIV. fig. 7. *Chilina* sp.

Extremely like *fluctuosa*, Gray, which is badly figured in the first part of his 'Spicilegia Zoologica,' pl. 6. f. 19.

Plate XXXIV. fig. 8. Indeterminable. Mr. Fulton suggests that it is probably a species of *Plecotrema*.

Plate XXXIV. fig. 9. *Marinula parva.*

Cremnobates parva, Swains. Pap. & Pr. Roy. Soc. V. D. Land. iii. (1) 1855, p. 44, pl. 7. f. 3.

Tasmania.

Plate XXXIV. fig. 10. *Auris bilabiatus.*

Bulimus bilabiatus, Brod. & Sow. Zool. Journ. v., Feb. 1830, p. 49, tab. suppl. 40, f. 1, 2.

Brazil (coll. Bland and Sowerby).

Plate XXXIV. fig. 11. *Odontostomus fusiformis.*

Helix fusiformis, Rang, Ann. Sci. Nat. xxiv. 1831, p. 60, pl. 3. f. 2.

Brazil.

Plate XXXIV. fig. 12. *Melania* sp.

An immature shell and indeterminable.

Plate XXXV. fig. 1, 2. *Natica* sp.

Indeterminable.

Plate XXXV. fig. 3, 4. *Lunatia lewisii.*

Natica lewisii, Gld. Proc. Bost. Soc. Nat. Hist. ii. 1847, p. 229.

Puget Sound.

Often known too as *N. herculea*, Midd., but this name is two years later.

Plate XXXV. fig. 5, 6. *Lunatia heros.*

Natica heros, Say, Journ. Acad. Nat. Sci. Philad. ii. pt. 2, 1822, p. 248.

New Jersey.

Plate XXX. fig. 1. *Natica* sp.

Indeterminable.

Plate XXX. fig. 2. *Ampullaria* sp.

Indeterminable.

Perhaps *ovata*, Oliv.

Plate XXX. fig. 3. *Ampullaria scalaris.*

A. scalaris, Orbigny, Mag. de Zool. 1835, p. 31.

Argentine Republic and Bolivia.

Plate XXX. fig. 4. *Streptaxis* sp.

Mr. Fulton refers it with doubt to this genus.

Plate XXX. fig. 5. *Haminæa elegans.*

Bulla elegans, Gray, Thomson's Ann. Philos. n. s. ix. 1825, p. 408.

A West Indian species.

Plate XXX. fig. 6. *Bulla occidentalis.*

B. occidentalis, A. Adams, Thes. Conch. iii. 1850, p. 577, pl. 123. f. 72, 73.

St. Vincent's (Guilding in Mus. Cuming).

Plate XXX. fig. 7. *Terebra cerithina.*

T. cerithina, Lam. An. sans Vert. vii. 1822, p. 289.

Les mers de Timor (mon cab.).

Plate XXX. fig. 8. *Acanthina grandis.*

Monoceros grande, Gray, Zool. Beechey's Voyage, 1839, p. 124.

Pacific Ocean.

Plate XXX. fig. 9. *Turritella cingulata.*

T. cingulata, Sow. Tankerville Cat., App. 1825, p. xiii.

A W. coast of S. America shell.

Plate XXX. fig. 10. *Colus kroyeri.*

Fusus kroyeri, Möller, Ind. Moll. Groenland, 1842, p. 15.

Greenland.

Plate XXX. fig. 11. *Chorus giganteus.*

Monoceros giganteum, Less. Voy. 'Coquille,' Zool. 1826, p. 405, pl. 11. f. 4.

Bay of Talcahuano, Chili.

Plate XXIX. fig. 1. *Modiola* sp.

A doubtful species.

Plate XXIX. fig. 2. *Cardium multipunctatum.*

C. multipunctatum, Sow. P. Z. S. 1833, p. 84.

China (Mus. Cuming).

Plate XXIX. fig. 3. Indeterminable.
Mr. Fulton suggests that it may be species of *Standella*.

Plate XXIX. fig. 4. *Modiola* sp.
A doubtful species, referred to this genus by Mr. Fulton.

Plate XXIX. fig. 5. Indeterminable.
Mr. Fulton suggests that it may be a species of *Paphia*.

Plate XXIX. fig. 6. *Mulinia byronensis*.
M. byronensis, Gray, Mag. Nat. Hist. n. ser. i. 1837, p. 376.
South America (Capt. Lord Byron).
Also figured in the 'Zoology of Beechey's Voyage,' pl. 44. f. 11.

Plate XXIX. fig. 7. *Petricola* (*Naranio*) *lapicida*.
Venus lapicida, Gmel. Syst. Nat. ed. 13, 1791, p. 3269.
Aden.
Identified, with a slight doubt, by Mr. Fulton.

Plate XXIX. fig. 8. *Modiola lævigata*.
M. lævigata, Gray, Append. Parry's Voyage, Zool. 1821, p. 66.
No exact locality given: it is a widely-spread Arctic species.

Plate XXIX. fig. 9. *Nicania striata*.
N. striata, Leach, Voy. Disc. J. Ross, ed. 2, vol. ii. App. 4, 1819, p. 176.
Taken in lat. 76° 42′ N., long. 76° W.

Plate XXIX. fig. 10. *Nicania banksii*.
N. banksii, Leach, Voy. Disc. J. Ross, ed. 2, vol. ii. App. 4, 1819, p. 176.
Baffin's Bay; received also from Spitzbergen.

Plate XXXVI. fig. 1. *Pecten dentatus*.
P. dentatus, Sow. P. Z. S. 1835, p. 109.
St. Elena (coll. Cuming).

Plate XXXVI. fig. 2. *Anodonta cygnea*.
Mytilus cygneus, Linn. Syst. Nat. ed. x. 1758, p. 706.
Europe.
With *Dreissena polymorpha*, Pallas, attached. There is a similar specimen in the British Museum coll., but not the original of this figure.

Plate XXXVI. fig. 3. *Cardium* sp.?
I am unable to determine this figure with certainty—it may be *C. burchardi*, Dunker, from Japan. Mr. Fulton is inclined to regard it as *C. oblongulum* or a closely-allied form.

Plate XXXVI. fig. 4. *Talona clausa*.
T. clausa (Gray), Sow. Thes. Conch. ii. 1855, p. 498, pl. 107. f. 74, 75.
Senegal, R. Gambia.
Determined by Mr. Fulton.

Plate XXXVI. fig. 5. *Cardium lævigatum*.
C. lævigatum, Linn. Syst. Nat. ed. 10, 1758, p. 680.
This figure is very similar to that of Reeve, Conch. Icon. ii. pl. 14. f. 69, taken from a specimen in the Cuming coll. from the W. Indies.

Plate XXXVI. fig. 6. *Crassatellites antillarum*.
Crassatella antillarum, Reeve, P. Z. S. 1842, p. 44; Conch. Icon. i. pl. 2. f. 8.
W. Indies.
Identified with doubt.

Plate XXXVI. fig. 7. *Didacna donaciformis*.
Cardium donaciforme, Brug. Enc. Méth. i. 1789, p. 214.
Iles de Tranquebar (Chemnitz).
The specimens in the British Museum coll. came from the Philippines.

Plate XXXVI. fig. 8. *Gnathodon cuneatus*.
G. cuneatus, Sow. Gen. Shells, pt. 36, 1832, pl. 40. f. 1–3.
New Orleans.
Gray received two valves of this shell from a ballast-heap left in Canada by a ship from the Gulf of Mexico. He sent a manuscript containing a description of the species to the editors of the American Journal of Science, but, under the impression that the shell had been already described by Lamarck, they did not publish it. Eventually it was published as above quoted.

Plate XXXVII.
I am unable to identify these figures of molluscous animals, and none of them agree with any of those figured in Mrs. Gray's work; fig. 3 is apparently a *Scutus* and fig. 4 is probably an *Aplysia*.

ECHINODERMA, ANNELIDA AND CŒLENTERA.

By F. A. Bather, M.A., D.Sc., F.R.S.

Plate XII.

Figures 1–4 represent portions of the Lansdown Encrinite, *Millericrinus prattii* (Gray), and it is probable that all are parts of the holotype. It is possible that Fig. 8 also refers to this specimen. The species was first made known by J. E. Gray in September, 1828 (*Phil. Mag.* iv. pp. 219–220), in a short paper which we here reprint. The present figures were doubtless intended as the illustrations to this paper.

"*Description of a new Kind of* Pear-Encrinite *found in England.*

"Encrinites (*Apiocrinites*) Prattii, n.

"*Specific Character*:—Column formed of round joints adhering by radiating surfaces, ? of which the 4 or 5 top ones gradually enlarge at the apex, and sustain the pelvis, &c.

"*Icon.* n. Inhab. Lias, summit of Lansdown, near Bath.

"*J. S. Pratt, Esq.* Mus. Brit.

"This species appears to be intermediate between *A. rotundus* and *A. ellipticus* of Miller, and for the sake of comparison I have given the specific character after his method.

"The column is thin, composed of short cylindrical joints, but the articulating surfaces are not distinctly seen in the specimen under examination; the enlarged apex is reversed conical, formed of 5 joints, the basal one is very small, and thin; the second, third and fourth, each gradually larger and thicker; the fifth is nearly of the same height, but rather larger in diameter, and the upper part is divided into 5 articulating surfaces, each marked with five radiating grooves, and finely crenated on the margin. The pelvic plate small, wedge-shaped; the outer edge is pentangular, outer sides very short. The first and second set of costals are broad and nearly equal; the scapulars are as thick as the costals in the centre, and shelving

on each side; the arms, two from each scapular, compressed, each furnished with a double series of thin jointed filiform tentacula, the first joints of the arm are similar to the first costals, and the joints of the appendages are thin and compressed, similar to those in the arms of *Comatula*.

"In the above description I have adopted the name of the parts used by Miller. For the knowledge of this species I am indebted to the kindness of Mr. J. S. Pratt of Bath, by whom it was found. The specimen is placed in the collection of the British Museum. And I have ventured to name the species after that gentleman, although he disclaims being the first discoverer of it: but I consider that he is justly deserving of the honour, as being the first person who enabled it to be made public, and presented a specimen for the purposes of science to the National Collection."

The modern equivalents of certain terms used by Gray are as follows:—

pelvic plates	= basals, BB
first costals	= radials, RR
second costals	= first primibrachs, IBr_1
scapulars	= primaxils, IAx = IBr_2
first joint of the arm	= first secundibrachs, $IIBr_1$
tentacula	= pinnules.

The chief question raised by this plate is the identity of the specimen shown in Fig. 4. This specimen is in the Geological Department of the British Museum, registered E 24663. It is said to be from the Great Oolite of Lansdown, Bath; it was for a time removed from the collection along with another specimen of the species, I believe for study by P. Herbert Carpenter, and was returned in 1890, at which time the note was made that the original mode of acquisition was unknown.

Next, is this specimen the holotype? The following are the reasons for believing that it is. The plate bears the date 1828; the 8 is very faint, but just legible. The specimen, therefore, was in Gray's hands in that year. His paper was published in September, 1828, and in it he speaks of only a single specimen. That specimen, which of course is the holotype, was in the British Museum; and, if it be not E 24663, there is now in the Museum no other specimen that it can be. Figures 1, 2, and 3 at first sight present certain difficulties. Fig. 1 represents the five proximal columnals, and agrees closely with Gray's description. If the drawing was enlarged two diameters, this fragment may have belonged to E 24663, but, being separate, has unfortunately disappeared. Fig. 2 might be thought to represent a distinct specimen; but, since the evidence is against the existence of more than one specimen, it more probably represents part of E 24663, also enlarged two diameters. If so, then the specimen has been turned right round, so that the ray which in Fig. 4 is directed to the bottom of the page is here directed to the top. The only objection to this interpretation is that the interradius towards the bottom is here shown with the basal cleared away, so as to expose the sutural face of the corresponding radials, whereas in specimen E 24663 this basal and its neighbour, though damaged enough to disclose a part of the sutural face, are both present in large part. Mrs. Gray may, however, have been directed by her husband to imagine the basal entirely absent.

It is not easy to see the *raison d'être* of Fig. 3. It is not an enlarged view of a pinnule. Perhaps it was meant for the side view of an arm branch. Anyway, it proves nothing.

Fig. 7 apparently depicts the ventral face of *Antedon*, and was probably introduced to elucidate Fig. 8. It is possible that the latter was an attempt to draw or reconstruct the ventral face of *Millericrinus pratti*. Someone, at some time before 1890, excavated the holotype from the back so as to expose part of the ventral face. The appearances are very obscure, but I fancy there are indications of raised ridges proceeding to an arm-pair and meeting round the oral centre in a pentagon, as shown in Fig. 8. That the subvective structures are represented by ridges and not by grooves is due to the preservation of cover-plates more solid than those in *Antedon*. If this interpretation be correct, it confirms the identification of E 24663 as the holotype. Were it not for Fig. 8, I should have ascribed the excavation of the specimen rather to P. H. Carpenter or museum preparators under his direction than to Gray.

A few further remarks on the species and on this specimen may not be out of place.

The chief interest of the species is the extreme variation in length of its stem, as so clearly brought out by P. H. Carpenter (Feb. 1882, *Quart. Journ. Geol. Soc.* xxxviii. pp. 29–43). The stem-fragment (Fig. 1) probably did not include all the columnals, but had been broken off. The very thin columnal, the distal-most of those remaining, was probably a newly intercalated ossicle (Carpenter, 1882, p. 33).

The proximal columnal with its radial ridges sometimes arose by similar intercalation, and was at first represented by five separate pieces simulating infrabasals. Carpenter, however (p. 34), rightly rejected that interpretation, and indeed seems, when writing his paper, to have regarded *Millericrinus* as monocyclic. He nowhere mentions the infrabasals, nor does he show them in his fig. 16. That infrabasals were present might, however, have been gathered from E 24663. The central pentagonal space, shown in Figs. 2 and 4, is occupied by five distinct plates surrounding a central lumen. This infrabasal pentagon is a rounded star of about 1·0 mm. diameter. The under surface of each infrabasal is slightly convex.

The basals do not stand out in Fig, 4, but are shown of the correct proportions in Fig. 2. In neither figure, however, has the artist caught the modelling of the under joint-face. To some extent that is shown in Carpenter's fig. 16. The interbasal sutures are depressed. The central area of each basal triangle is depressed, and the depression shallows rapidly towards the adcentral apex and gently towards the outer margin or base of the triangle. Thus the circumference of the stem-facet is not an equable line, but rises sharply on the radii, at the interbasal sutures, and gently on the interradii. This latter rise is, naturally, most clearly seen in a side view. It is not represented in any of Carpenter's figures, which show the lower margin of each basal as straight or convex. A slight concavity is, however, visible in the British Museum specimen, E 5722, from Lansdown. The meaning of this interradial depression is at present obscure; it may be connected with a pentamerous grouping of the longitudinal ligaments of the stem (*cf.* Carpenter's fig. 22). Fig. 2 shows the stem-facet covered with radiating striæ. Actually there is only an outer border of crenellæ, as described by Gray and as shown in Carpenter's fig. 16. They run about ten or fewer to the millimetre, much finer than in Carpenter's figures.

Carpenter (1882, p. 34) remarked on irregularities in the structure of the base, but did not comment on the very small size of the basals in his fig. 9, the original of which is now in the national collection (E 14661) and shows the basals lower and with a more obtuse upper angle than in Carpenter's figure, and quite separated from each other on the outside of the cup. Another individual on the same slab is without columnals, and here the basals, which are similarly reduced on the outer surface, meet at about a third of the distance from the margin to the centre. This specimen is said to have come from the Forest Marble of Miserden. Specimen E 67, from the Forest Marble of Corsham, Wilts, seems to have had basals in the same stage of reduction. It would not, however, be safe to infer, on this evidence alone, that from the base of the Great Oolite to the Forest Marble

there was a progressive reduction in the size of the basals. In an individual of slab 9574 from the Stonesfield Slate of Northleach, Glos,, the basals were small and almost covered by a columnal of rounded star shape.

Fig. 4 shows in the upper interradius an accessory plate at the angle where the radial meets the two basals. The shape is incorrect. Actually in three radii is a triangular depression with its base truncating the lower angle of the radial. The sides of the depression slope inwards, till they abut, at least in one radius, on a small plate of triangular outline. Carpenter has discussed such depressions, which in the ordinary Pear encrinite of Bradford often appear as pores in a teat-like swelling. The plates that occasionally fill them may be quite thin or may run back to the thecal cavity, as in the unfigured individual of E 14661.

The arms are drawn in Fig. 4 with enough accuracy for the recognition of the specimen, but the details are not well rendered.

The joints between the brachials in *M. pratti* are of three kinds, as noted by Carpenter (1882). (1) The complete articulation with a horizontal fulcral ridge, dorsal ligament-pit, and ventral muscle-plates with fossæ; this occurs most elaborately developed on the radial facet, and, with the necessary modifications, on the shoulders of IAx and between most of the IIBr (see E 5722). (2) The bifascial articulation, with vertical fulcral ridge separating two large ligament-fossæ; this occurs between $1Br_1$ and IAx, and $IIBr_1$ and $IIBr_2$; it is well shown in British Museum specimens 48900 and E 5722. (3) The syzygy, where ridges radiate from a raised ring round the axial canal to the margin; 4 or 5 ridges are sometimes all that can be detected, others arise between them, until the surface is covered with about 20 ridges. Syzygies can be detected in most of the rami of the holotype, and occur generally between $IIBr_4$ and $IIBr_5$, in one case between $IIBr_5$ and $IIBr_6$. In none do they seem to lie between $IIBr_3$ and $IIBr_4$, as they do in some rami of other specimens. The second syzygy is at $IIBr_{8-9}$ or $IIBr_{9-10}$. In both individuals of E 14661 the first syzygy, wherever seen, is at $IIBr_{4-5}$.

Pinnules are borne on all IIBr after $IIBr_1$, except on the hypozygals. The pinnule facet has a transverse fulcral ridge, and this plan of joint occurs, though much simplified, between all the pinnulars except pn_1 and pn_2 (and possibly pn_2 and pn_3), where the articulation is bifascial. This emphasizes the essential similarity of pinnules and rami.

There is no definite evidence that cover-plates were borne by the brachials, but it is probable that they were present, especially on the non-pinnuliferous brachials, since they were present on the pinnules, as shown in Carpenter's fig. 9 (E 14661). The pinnulars here are ·6 mm. long and ·3 or ·4 mm. high; each bears 3 cover-plates. Each cover-plate has therefore a diameter of ·2 mm; its length is about ·3 mm. or more. The cover-plates are set close together and may overlap. In the proximal region of each pinnule the pinnulars are relatively shorter, and sometimes their inner angles are bevelled to permit inward coiling, as well shown in the holotype. The preceding measurements merely illustrate the general numbers and proportions; there is slight variability.

Carpenter did not give the length of the arms. Measurements taken from British Museum specimen 9570, from Northleach, indicate that the ramus reached at least 10·5 cm. Two fragments from the distal region are seen in the interradii in Carpenter's fig. 9. The pinnules in the proximal region were fully 15 mm. long.

Figures 5 and 6 represent fossil Serpulæ. It has proved impossible to identify the specimens in the British Museum. The shell appears to have been triangular in section. All may have belonged to the Jurassic *Serpula conformis*, Münster in Goldfuss's 'Petrefacta Germaniæ,' pl. lxvii. f. 13 (1831). I cannot find that Gray described these fossils.

Figures 9 & 10 represent a cup-coral, which Dr. W. D. Lang identifies with *Stylophyllopsis mucronata* (Duncan sub *Montlivaltia*) from the Lower and Middle Lias. Fig. 9 shows the transverse banding of the epitheca. Fig. 10 shows the characteristic way in which the septa break up towards the centre of the calyx. It does not appear that Gray ever described any fossil corals.

F. A. Bather.

Plate XXXVIII. *Scaphophyllia cylindrica*, M.-Edwards & Haime; CR. Acad. Sci. Paris, xxvii. 1848, p. 492; Ann. Acad. Sci. Nat. Paris, (3) x. 1848, pl. 8 & xi. 1849, p. 278; Nat. Hist. Corall. iv. 1857, p. 386, pl. 8. f. 8.

China Seas.

The specimen figured on this plate is in the British Museum (Coral Gallery, case 12; Regd. 23.12.31.1.), the figure is reduced to $\frac{2}{3}$ linear.

January 25, 1924.

ERRATA.

Page 4, col. 1, line 18, after *Cryptostoma* add Icon.
„ 5, „ 1, „ 23, for Icon. t. 6. f. 10 read Icon. t. 6. f. 18.
„ 5, „ 1, „ 24, after Inhab. add India.
„ 6, „ 2, „ 12, after Icon. add t. 3. f. 8.
„ 7, „ 2, after line 1 add Icon. t. 6. f. 15, 15 *a*.
Page 9, line 1, before line 1 insert Mammalia.
„ 12, col. 2, after *depressicornis* add Spicil. Zool.
Plate 7, for *Specilegia* read *Spicilegia*.
„ 24, for *Plocens* read *Ploceus*.

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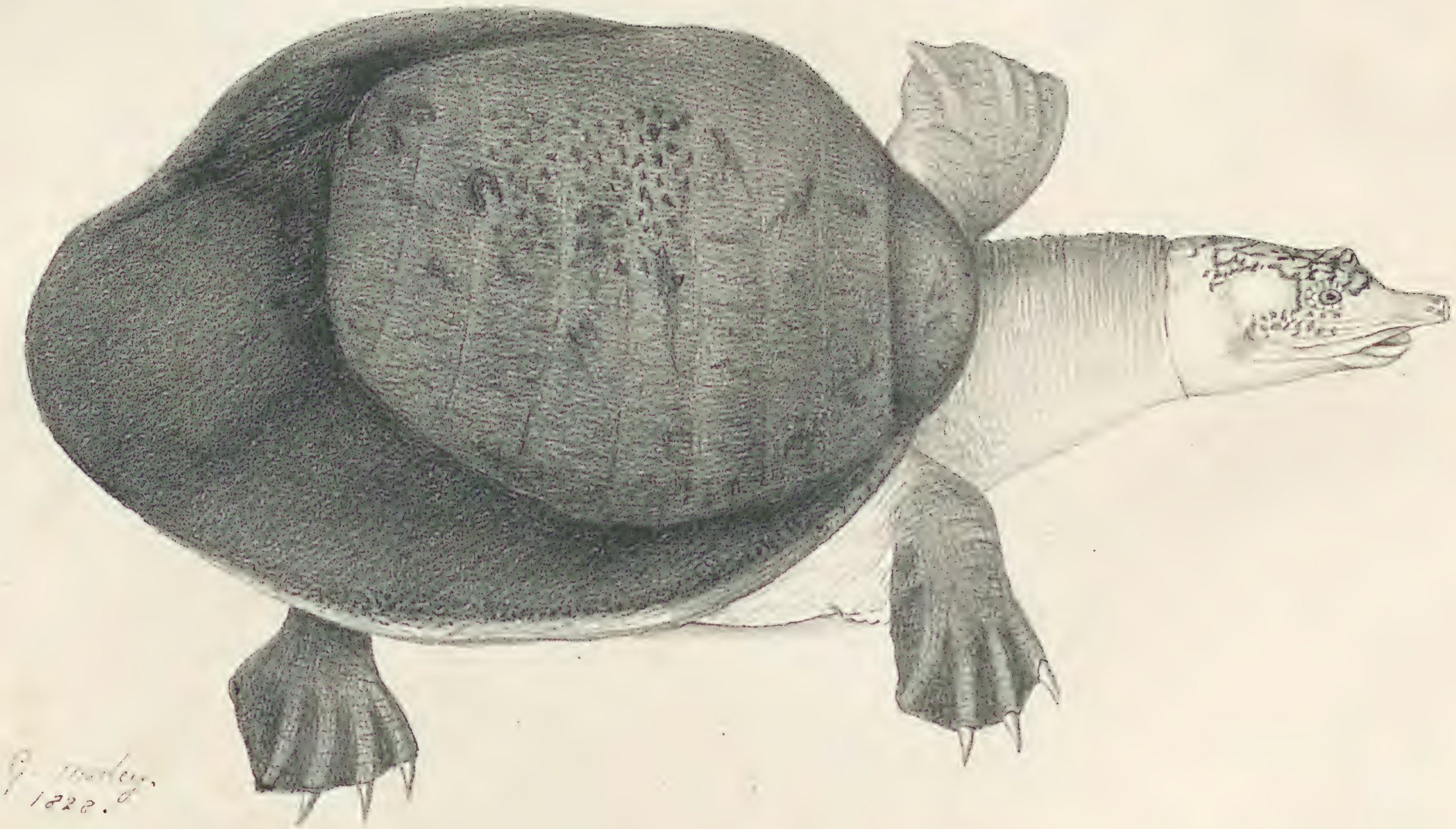
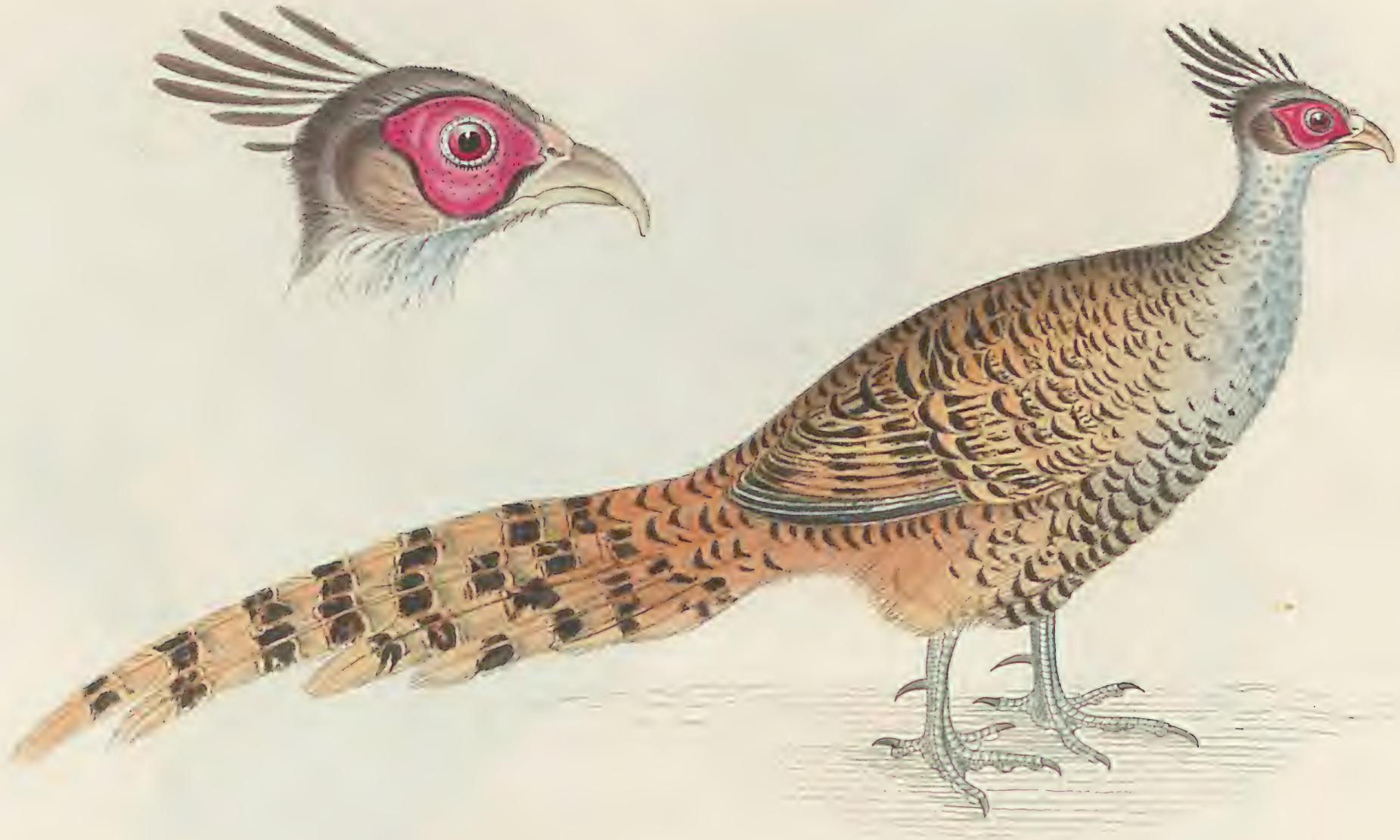
Printed by Taylor and Francis, Red Lion Court, Fleet Street, E.C. 4.



G. Worley. 1828.

AUSTRALASIAN FISHING EAGLE. ——— HALIÆETUS AUSTRALIS ½ Natural Lenght.

J.S. Gray del.



Wallich's Monaul — *Lophophorus Wallichii*

Published by Treuttel, Wurtz & Co. London.

LATHAMS ALECTURA.

ALECTURA LATHAMI.—Gray.

New Holland 1/3 Nat Length.

W. Daw Lith.r to the King 17, Gate St. Lincolns Inn Fields

TROGLODYTE BEACH RAIL.
ACTAEUS TROGLODYTES. — Gray
New Zealand. — 1/2 Nat Length.

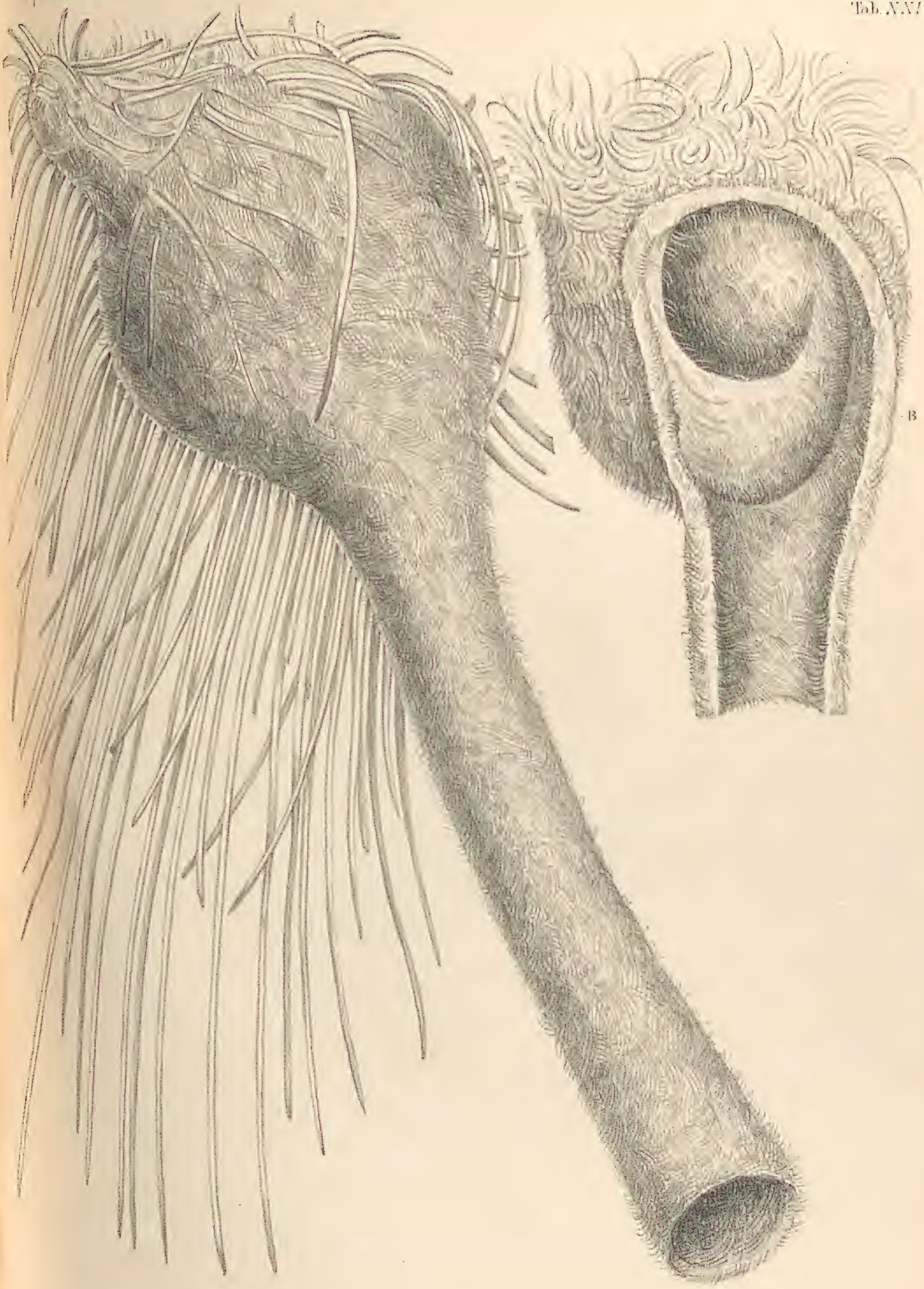
W. Day Lith.r to the King 17, Gate St. Lin. Inn Fields

Tab. XXII.

WHITE WINGED GREBE. Lath: young. — PODICEPS AFFINIS. — Natural size.

Printed by W. Day Lith.r to the King 17 Gate St. Lin. Inn Fields

B.W.Hawkins



NEST of BENGAL WEAVER. — PLOCENS BENGALENSIS, half Natural Length.
B. *Section shewing the Interior.*

G.G.Reed Lith:

Printed by W.Day Lith.r to the King, 17 Gate St.r

W.C.Ivy. del.

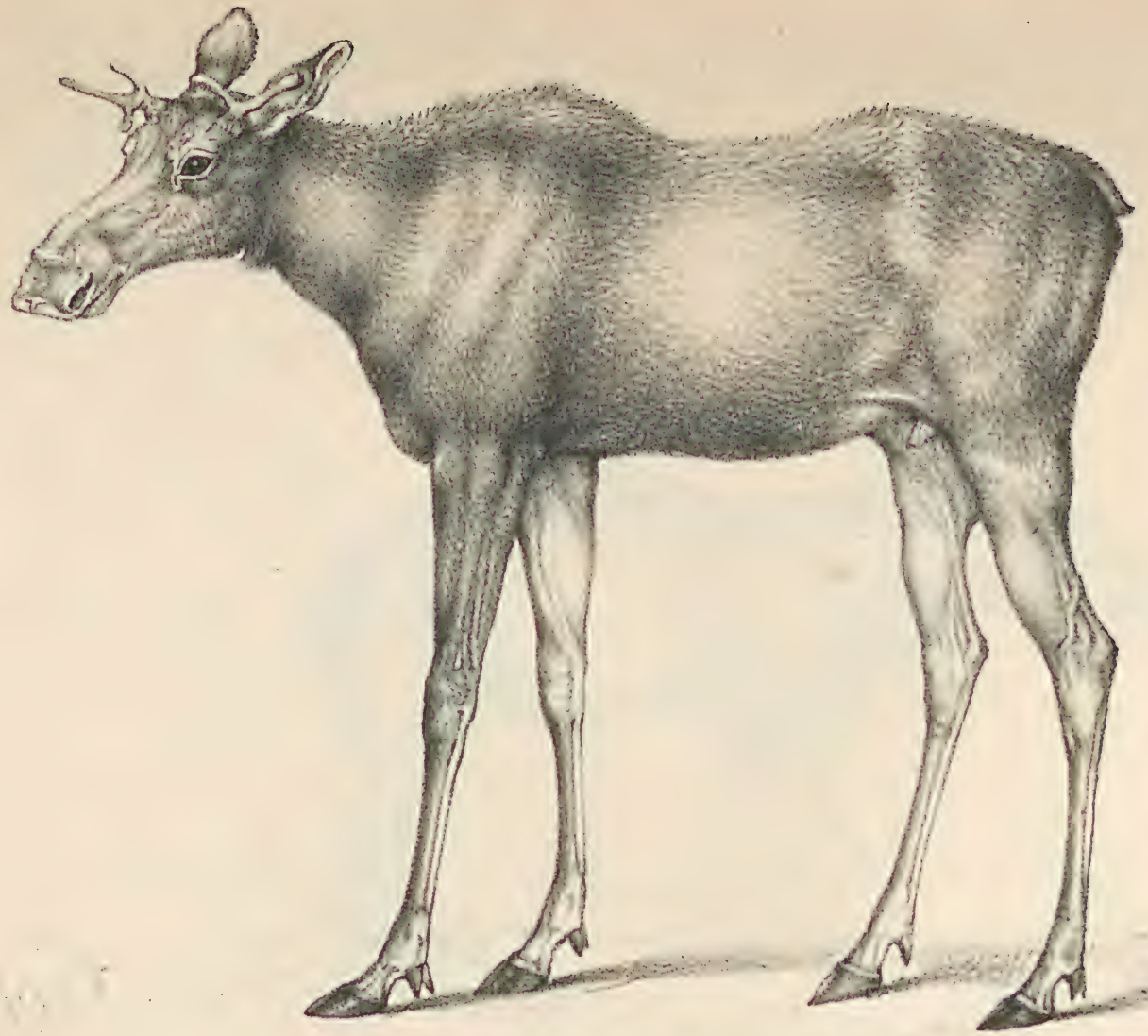
C.F.G. lith.

BARBARY GENET, VIVERRA AFRA, n.

Barbary. Lion Office. Tower of London. Oct.r 1829.

Published by Parbury Allen & Co Leadenhall St

Printed by W Day.

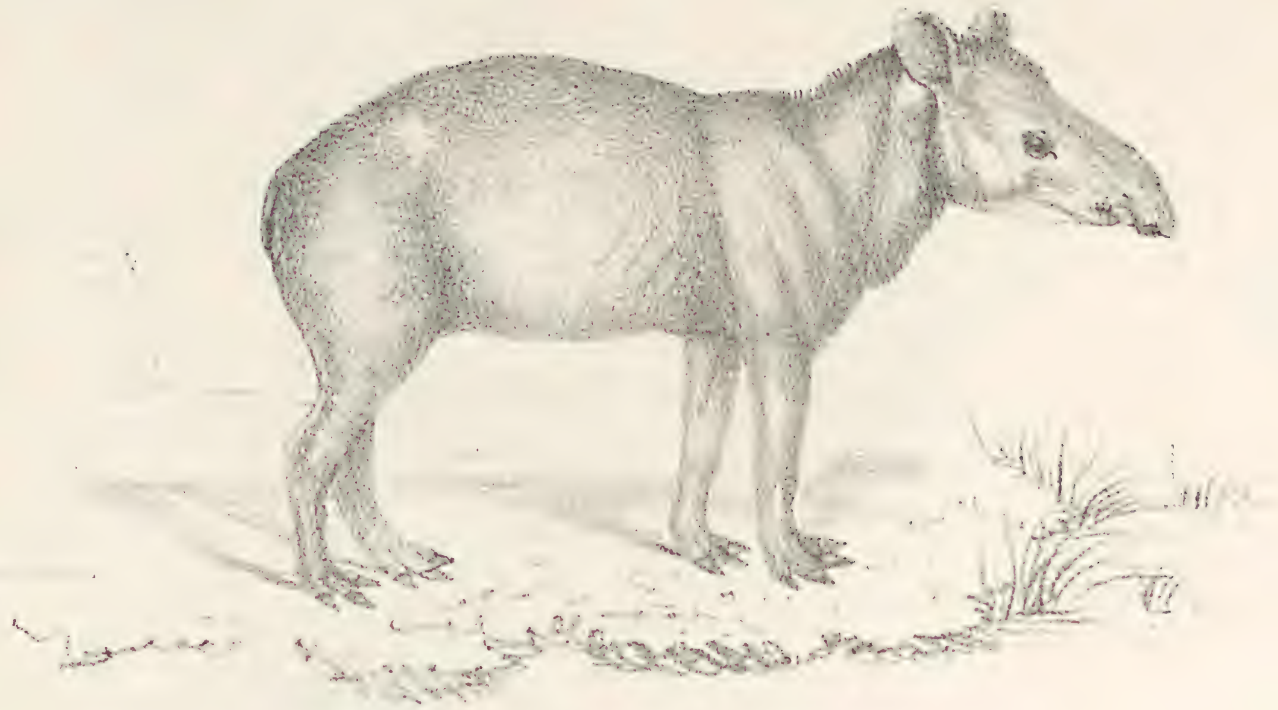


F. III.

ELK (Young) CERVUS ALCES, Lin. Jun.

Crofs's Royal Menagerie Sept^r 1829.

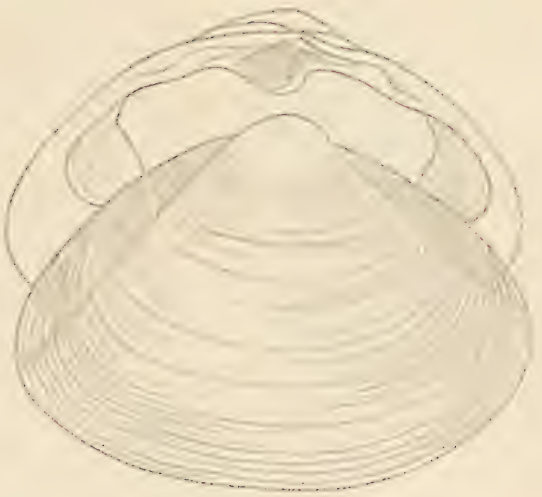
Published 1830 by Treuttel Wurtz & C^o Londenhall Street
Printed by W Day

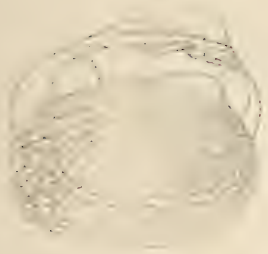


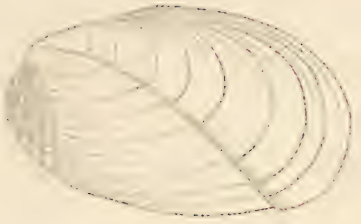
Drawn on Stone by W. Wing.

Hullmandel & Walton Lithographers.

1. RHINOLOPHUS MACROTIS.
2. ---------- FUSCUS.
3. EURYOTIS GRANDIS.
4. RHINOLOPHUS TRAGATUS.
5. ---------- MEGAPHYLLUS.
6. ---------- AURANTIUS.







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V.P. Mauger sculp. 20 feet

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S.P.Gray fecit

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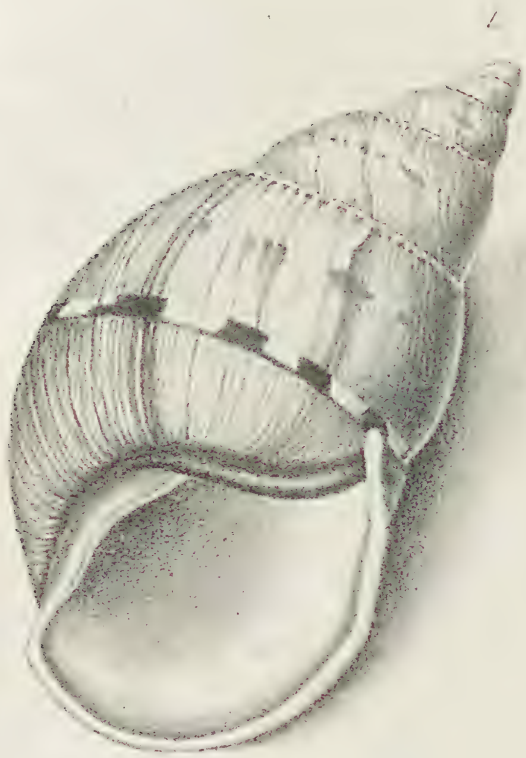
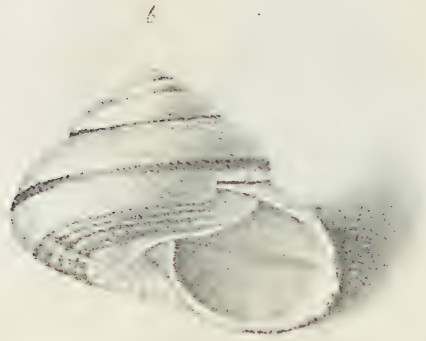
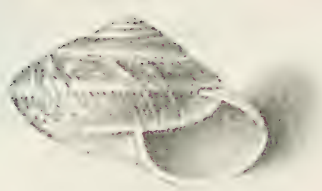
J. E. Gray, fecit







Sepimus & Percy fecit

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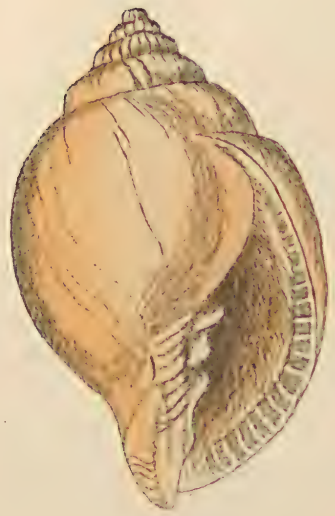

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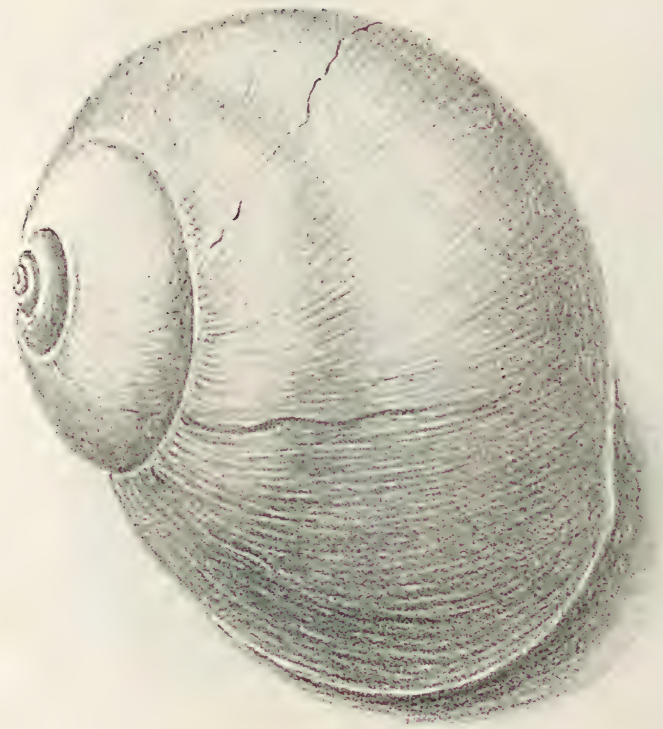

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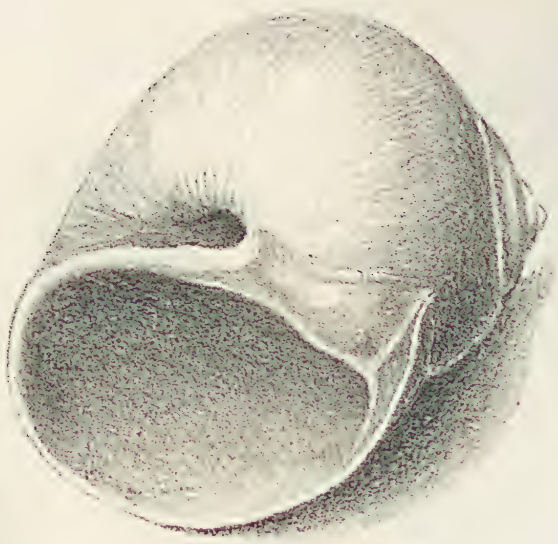

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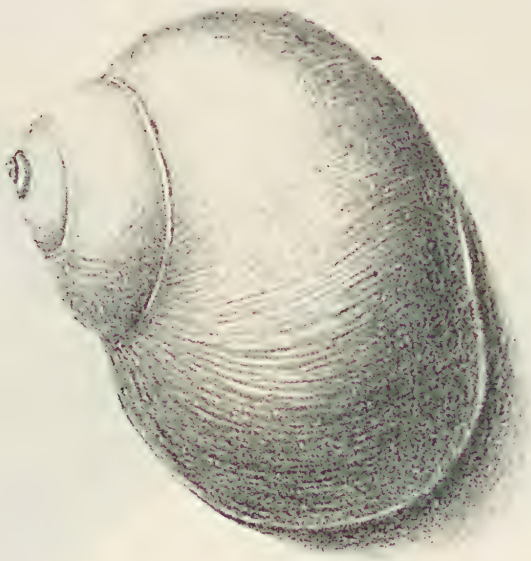

Gibsone del.

W.P. Mauger lithog.

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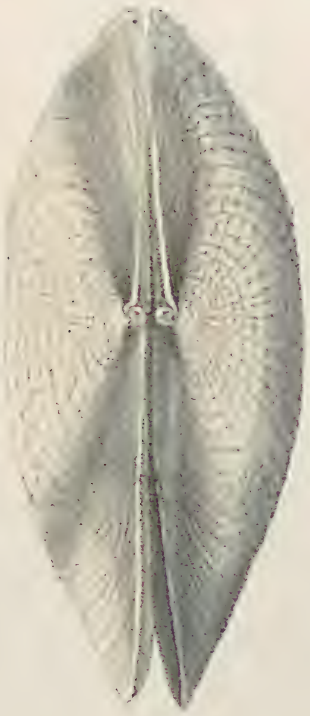

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E.J. Gray Nov. 1829.

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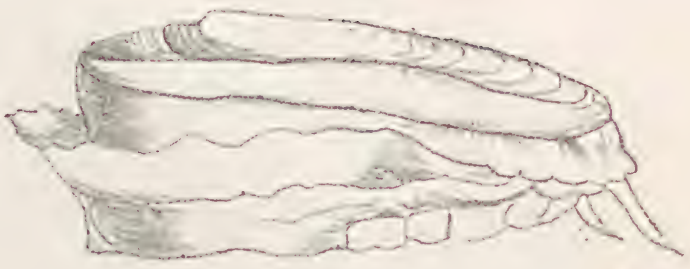

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